January 2005 (rev.)

Shoreline Protection Foundation Improvements Demonstration (LA-06)

Project Status

Approved Date: 2004
Cost: $1.1 million
Project Area: N/A
Status: Construction
Net Benefit After 20 Years: N/A
Project Type: Demonstration: Shoreline Protection

Location

The project will be located along the southern shoreline of White Lake, from Will's Point to the western shore of Bear Lake, north of Pecan Island in Vermilion Parish, Louisiana.

Problems

Poor soil conditions in coastal Louisiana limit the cost effectiveness of shoreline protection dikes because of higher consolidation and settlement rates. This results in frequent and expensive project maintenance.

Restoration Strategy

The goal of this project is to investigate foundation improvement methods to reduce rock dike settlement. Shoreline protection in some areas is currently challenged in terms of cost effectiveness over a 20-year project life cycle because of poor soil conditions. The objective is to determine if a sand base can improve rock dike-bearing capacity and consolidation settlement design tolerance.

The demonstration project will be conducted over 5,400 linear feet of dike and will include two replicates of the test design. The test design will include two different foundation improvement treatments and a control. Each replicate will include three 900-linear-foot sample sections as follows: a control section consisting of unimproved dike; an improved section consisting of a sand foundation that would displace soft near-surface material; and an improved section consisting of a sand foundation with soft near-surface material removed via dredging. Each sample section will be instrumented with four sets each of crown, front, and rear settlement plates, inclinometers, and extensometers at approximately 180-foot intervals, which will be monitored, recorded, and analyzed to determine the effects of the foundation improvements. Geotechnical borings will be taken at each of the six sample sections during construction to more accurately determine underlying soil conditions.

Shoreline protection dikes, such as the one above, have been successful in halting shoreline erosion in many parts of coastal Louisiana; however, soft substrates in some areas lead to the structures sinking because of their weight. This project will test designs to solve the problem.

Progress to Date

The Louisiana Coastal Wetlands Conservation and Restoration Task Force approved funding for this demonstration project at the January 2004 meeting and gave their approval to begin construction at their October 2004 meeting.

Another CWPPRA project, the South White Lake Shoreline Protection project (ME-22), has been selected as the host project for conducting this demonstration because it provides an environment where soil conditions are poor to very poor, the wave climate is harsh, and wetland loss is high. The demonstration will be conducted along Reach 5 of ME-22, which begins approximately six miles west from Will's Point and extends west along the shoreline for a maximum distance of approximately 15,200 linear feet.

This demonstration project is expected to provide more effective and economical methods for designing and constructing shoreline protection in areas that are currently not considered for shoreline protection because of their substrate limitations.

This project is on Priority Project List 13.

For more project information, please contact:

US Army Corps of Engineers
New Orleans District

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Local Sponsor:
Louisiana Department of Natural Resources
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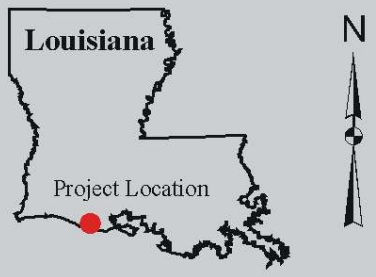
Project Boundary

USGS
science for a changing world



0.25 0 0.25 0.5 Miles

0.3 0 0.3 0.6 Kilometers

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station

Background Imagery:
1998 Digital Orthophoto Quarter Quadrangle

Map Date: June 23, 2004
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